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No. 86, Original

In the Supreme Court of the United States**October Term, 1982****STATE OF LOUISIANA,***Plaintiff,***VS.****STATE OF MISSISSIPPI, ET AL.,***Defendants.*

**EXCEPTIONS TO THE REPORT
OF THE SPECIAL MASTER**

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I.

**EXCEPTIONS TO THE REPORT OF THE
SPECIAL MASTER**

The State of Mississippi excepts to the Report Of The Special Master now before this Court in the following particulars:

A. The Special Master erred in finding as fact that at all times relevant to these proceedings the live thalweg of the Mississippi River in the area in dispute, which constitutes the Louisiana-Mississippi State boundary, lay to the east of the bottom hole location of the producing oil well in issue.

B. The Special Master erred in refusing to recommend, by precise geodetic coordinates, a geographical locus of the live thalweg (State boundary) of the Mississippi River for the entire reach of the river in dispute, during each of the relevant years, 1972 to date.

II.

ARGUMENT**A. Statement of the Case**

This is an original action filed by the State of Louisiana against the State of Mississippi to resolve a dispute as to the true boundary line between these States in a disputed reach of the Mississippi River just north of Natchez, Mississippi, as determined by the changing location of the thalweg of the river in the year 1972 and thereafter. The controversy arose originally from a claim by Mississippi riparian landowners, A. B. Dille, Jr., Henry W. Dille, and Richard T. Dille, that they were entitled to the royalties from an oil well directionally drilled in 1972 from a surface location on their Mississippi lands to a bottom hole location lying under the bed of the Mississippi River. When completed as a producing well, the bottom hole location (the "well location" or the "well") was on the Louisiana side of the interstate boundary. Subsequent to completion of the well, the thalweg migrated in an erratic manner. Mississippi claims that during some of the time span between completion of the well and trial of this cause, the thalweg (and consequently the State boundary) lay to the west of the well and at other times it lay to the east thereof but sufficiently close to result in the draining of oil from Mississippi lands.

The well was drilled under the terms of a lease granted by the State of Louisiana. All royalties and severance taxes, up to the time when suit was originally filed, have been paid by the operators of the well to the State of Louisiana. The Dilles filed suit in Chancery Court of Adams County, Mississippi, against the operators and the State of Louisiana, alleging that the well was either in the State of Mississippi or was draining oil from their

Mississippi lands, and asked for an accounting of and payment for the oil produced. This initial litigation was removed from State Court to the United States District Court, Southern District of Mississippi, by the operators and the State of Louisiana. Louisiana then filed this original action against the State of Mississippi and the Dilles. On joint motion of all parties to the lower court proceedings, the district court litigation was stayed.

The Court appointed the Honorable Charles J. Meyers, a member of this Court, Special Master in this cause, conferring upon him authority to conduct a hearing and to make recommendations to this Court. A trial was held in New Orleans, Louisiana, in September, 1982, and the Special Master has now filed with this Court his final report (hereinafter MR).

While acknowledging that this litigation is a "boundary dispute" between the States of Louisiana and Mississippi, the Master in his report to this Court does not recommend any specific geographic locus of the State boundary in question for any given point in time. Rather, the Special Master simply recommends, at page 34 of his Report, a decree adjudicating that at all relevant times "the thalweg of the river was never west of the bottom hole location of State of Louisiana Well No. 3 and that, accordingly, the well was throughout those years in the State of Louisiana". Thus, rather than describing an actual State boundary traversing the entire four-mile reach of the Mississippi River acknowledged to be in dispute here, the Master has contented himself with determining the precise location of only one point on that boundary—the point of intersection of an east-west line drawn from the exact location of the bottom hole of the well. The Special Master having then concluded that he would do no more than determine the State in which the well was located during the relevant times in issue, his recommenda-

tions to this Court are ultimately framed in terms of ownership of the well, alone, rather than a determination by geodetic coordinates of the locus of the interstate boundary in the area in dispute.

This matter now comes before this Court on Exceptions of the State of Mississippi to the Report Of The Special Master.

B. The Applicable Law

It appears from the trial briefs¹ filed with the Special Master that there seems to be no serious disagreement between Mississippi and Louisiana as to the law of the case. Therefore, discussion about the legal principles to be used in this case, as developed by the several major cases decided heretofore, need not be labored here. In our view, no better or succinct exposition of the law of the thalweg may be offered here than that of Judge Marvin Jones, Special Master in *State of Louisiana v. State of Mississippi*, 384 U.S. 24 (1966), found at page 12, et seq., of his report, as follows:

When a navigable river forms the boundary between two states, the live thalweg or middle of the main navigable channel, with certain exceptions, is the true boundary line. This general rule is well established by a long line of decisions in this Court. To cite a few:

Iowa v. Illinois, 147 U.S. 1

Louisiana v. Mississippi, 202 U.S. 1

Arkansas v. Tennessee, 246 U.S. 158

New Jersey v. Delaware, 291 U.S. 361

1. The pre-trial, post-trial, and supplemental post-trial briefs of both Louisiana and Mississippi, as well as transcript (TR) of the trial testimony have been lodged with the Clerk for reference in conjunction with these exceptions to avoid unnecessary repetition of material already presented to the Court through the Special Master.

The basis for this rule is the common interest of affected states in the navigation conducted on any stream forming the boundaries between such states.

If the dividing line were to be placed in the centre of the stream rather than in the centre of the channel, the whole track of navigation might be thrown within the territory of one state to the exclusion of the other. (Justice Cardozo in *New Jersey v. Delaware*, *supra*, at 380.)

The thalweg is the middle of the main navigable channel. This is normally the principal course taken by boats and is not necessarily the deepest channel.

Iowa v. Illinois, 147 U.S. 1

Louisiana v. Mississippi, 202 U.S. 1

Arkansas v. Mississippi, 250 U.S. 39

Minnesota v. Wisconsin, 252 U.S. 273

Arkansas v. Tennessee, 269 U.S. 152

New Jersey v. Delaware, 291 U.S. 361

The landmark decision establishing this definition of thalweg is *Iowa v. Illinois*, *supra*, wherein Justice Field traced the history of boundary and thalweg through the many treatises on International Law, using such definitions as the middle of: the channel, the main channel, the navigable channel, the main navigable channel, the deepest channel, the principal channel, and the channel usually followed. All subsequent decisions have followed *Iowa v. Illinois* in using the "track taken by the boats" as the live thalweg or boundary between states bordering on navigable rivers.

Since the optimum course for vessels is one requiring a minimum of rudder and speed changes, their track

will not always coincide with a line directly connecting the deepest portions of the stream. This is especially true in river crossings where no distinct deep water channel exists. On occasion there may even be several possible routes or channels. When this occurs, the solution of boundary is as set forth in *Iowa v. Illinois*, *supra*, at 13:

Thus the jurisdiction of each State extends to the thread of the stream, that is, to the "mid-channel," and, if there be several channels, to the middle of the principal one, or, rather, the one usually followed.

The Court followed this rule in *Minnesota v. Wisconsin* when the deep channel was along the shore and the boats used a shorter and more preferable course down the middle of the river. When determining the thalweg

(a)bsolute accuracy is not (always) attainable. A degree of certainty that is reasonable as a practical matter, having regard to the circumstances, is all that is required. (*Arkansas v. Tennessee*, 269 U.S. 152, 157, in a thalweg case.)

When by natural, gradual and more or less imperceptible processes of erosion and accretion the thalweg changes, the boundary follows the stream and remains along this varying center of the channel.

New Orleans v. United States, 12 U.S. (10 Pet.) 292

County of St. Clair v. Livingston, 90 U.S. (23 Wall.)

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Nebraska v. Iowa, 143 U.S. 359

Missouri v. Nebraska, 196 U.S. 23

Arkansas v. Tennessee, 246 U.S. 158

Kansas v. Missouri, 322 U.S. 213.

Mississippi generally concurs with the Special Master's analysis of the applicable law in his report. Of particular note is the passage in the closing paragraph of the section of the Report dealing with the applicable law, on pages 6-7, as follows:

. . . The ultimate concern of the Court in applying the thalweg doctrine lies in identifying *the actual or probable downstream course of river traffic*. In the present case, *the boundary line in the disputed area* must be determined by reference to evidence of *the course commonly taken downstream by vessels in navigating that reach of the river*. The evidence presented by the parties must be weighed in terms of its value for making the necessary inference as to *the ordinary course of downstream traffic on the river*. . . . (Emphasis added)

The significance of the Master's own words, drawn from and clearly consistent with the several prior cases decided by this Court and cited by Judge Jones quoted earlier, is that nowhere do we find this Court insisting upon a determination of the "most" safe or "least" perilous channel, or any other similar terminology. The Master correctly understands that the law of the thalweg has always been, and remains, rooted in the policy of providing equal access to navigation. The movement of tonnage down the Mississippi River is business—big business—expensive business. That's why it is so important for this Court to ever keep in mind the plain truth that mariners on the Mississippi River, while constantly vigilant to avoid the perils of the river as may endanger their craft and cargo, ply the sinuous bends of the Mississippi in such a way as to keep their overhead expenses, as well as the costs charged to their customers, as reasonable as possible. With this in mind, river pilots always have

to maneuver their tows as *efficiently* as possible through sharp bendways so as to minimize fuel consumption and time of travel. Even where available, leisurely pathways commonly taken by pleasure craft must be eschewed by pilots. The economics of towboat operations will not tolerate otherwise.

These simple facts of life are critical to an evaluation of the manner in which the Special Master applied the law of the thalweg to the evidence adduced at the trial of this case. As will be shown hereinafter, the Special Master, through artful use of logic and disregarding many years of experience supporting certain expert testimony before him, has reached conclusions which do not comport with the commonsensical facts surrounding the movement of cargo up and down the Mississippi River.

Finally, the Master asserts on page 4 of this Report that "the fixing of a permanent boundary on account of avulsive activity, as an exception to the thalweg rule, has no application in this proceeding". This assertion is bolstered by the remarks in footnote 1, page 4 of the Master's Report which recite that "the sole evidence before the Court relates to the location of the live thalweg in the disputed area from 1972 through 1982". Mississippi respectfully submits that both of these general statements are only partially true.

As will be developed further hereinafter, Mississippi (and Louisiana, also, until the Special Master began to hint that he did not want to prescribe a specific State boundary for the entire reach of the River in dispute) submits that the case requires an ultimate establishment of an actual boundary line, by geodetic coordinates, in this case inasmuch as a portion of the area "in dispute", as clearly shown on the exhibits filed by the State of Louisiana with its Complaint, involves the connection of

the live, migrating thalweg of the main channel of the River with the fixed, dead thalweg in Giles Bend Cut-Off occasioned by the avulsive cut-off of Giles Bend by the Corps of Engineers in the 1930's. Mississippi heretofore fully briefed the law of avulsion, before the Special Master, and specifically addressed the exception to the general rule which provides that a State boundary fixed by avulsive movement remains unchanged unless and until the migrating live thalweg returns to, and reoccupies, its former channel. *Nebraska v. Iowa*, 143 U.S. 359 (1891). Mississippi also presented ample evidence through Mr. Smith of how this rule applies to the case at bar. Louisiana neither specifically briefed the point of law nor offered any evidence directly on the question. The exhibits of Louisiana did, however, specifically show their contentions regarding the location of the 1964 "dead" thalweg in Giles Bend Cut-Off, but no effort was made by Louisiana to tie together this boundary with the migrating boundary that even Louisiana established has moved to the west of the 1964 location.

Therefore, Mississippi forcefully submits that the law of avulsion is, indeed, involved in this case, to the extent that the migrating live boundary in the main channel of the Mississippi River cannot have a hiatus with the "dead" 1964 Louisiana-Mississippi State boundary now fixed in Giles Bend Cut-Off. The State boundary must be continuous. Therefore, in finalizing the location of the State boundary in this cause, the Court must not only consider this particular exception to the law of avulsion, but also the evidence offered regarding this aspect of the case.

C. Treatment of Expert Testimony

In its brief submitted to the Special Master after the draft report was circulated for review, Mississippi dealt

at great length with the qualifications of the three expert witnesses who testified at the trial. While we generally urge the Court to very carefully study the material in Mississippi's post-trial briefs on this point filed with the Special Master, a few remarks are certainly appropriate here.

First, Mississippi does not and will not contend that either Mr. Harrison or Mr. Odom, the experts offered by Louisiana, are not capable engineers in their respective disciplines. Moreover, Mississippi not only acknowledges but defers to the experience of these men in their professional work regarding certain particular aspects of rivers and activities associated therewith. However, even many years of experience in a generalized engineering practice infrequently involving the actions of rivers, lakes, and even marine environments doth not a potamologist make.

The Special Master notes on page 7 of his Report that Mr. Austin Smith, the expert offered by Mississippi, "has appeared as an expert witness in a number of boundary cases in which the thalweg doctrine applied". Even now, it is apparent that the Special Master avoids recognizing the plain fact that Mr. Smith was offered by Mississippi as an expert in the field of potamology because of several decades of specific experience and his widely recognized knowledge and abilities in this area. Mr. Smith was not offered merely because he has testified in a number of earlier cases involving the establishment of interstate boundaries in major rivers using the thalweg doctrine. The only reason Mr. Smith testified in these earlier cases is because of his expertise in the field.

The specific manner in which the Special Master dealt with the testimony of Mr. Smith requires careful attention here, particularly in view of the fact that Mr. Smith has spent over fifty (50) years of his professional

career working in every phase of river engineering, navigation, dredging, mapping, and construction relative to the Mississippi River and its tributaries. The Master's obvious failure to fully understand the testimony of Mr. Smith is critical to the Court's disposition of our Exceptions To The Special Master's Report.

Whereas the witnesses for Louisiana ultimately relied almost entirely upon the depiction of a generalized "sailing line" marked in red on certain flood control and navigation maps of the Mississippi River periodically published by one branch of the Mississippi River Commission formerly headed by Mr. Smith, the determinations of the thalweg or live boundary made by Mr. Smith resulted from use of all of the raw data depicted upon the meticulously prepared Corps of Engineers hydrographic surveys of the reach of the river in question which were introduced into evidence.

For some reason, the Special Master deduced from Mr. Smith's testimony that he did not use the navigation aids in determining his live boundary:

Apparently Mr. Smith never explicitly used the navigational aids to determine the track of navigation and establish the live boundary. He repeatedly referred to the locking in of the thalweg by reference to the data on the hydrographic surveys. On re-direct, he was asked whether his live boundary lines fell within the "marks" relative to the navigation lights. He stated that he did not use the marks. He determined the live course according to the thalweg evident on the surveys. In short, Mr. Smith's methodology was to place a live boundary along the line of deepest and swiftest water that he could discern from the soundings and contour lines on the surveys. This methodology was applied to all reaches of the stream, including the crossing. (MR-14)

We submit that this is a strained interpretation of Mr. Smith's testimony. Mr. Smith used all of the data afforded by the exhibits, including the navigation data. He testified:

"Q. How did you go about determining the locus of that (State) boundary, Mr. Smith?

A. I determined that on the basis of the thalweg and the track of navigation.

Q. How did you determine the track of navigation, what aids did you use and how did you employ them?

A. I had the lights, the lights were on the map, and I had the benefit of the Coast Guard directions. I might say I didn't have any Coast Guard directions for that survey." (Speaking of Exhibit D-4, being the 1972 hydrographic survey) (TR-351)

Again, speaking of his locating the track of navigation or the State line (he frequently used the phrase "lock it in" or "locking" it in) Smith testified, still with reference to the 1972 survey:

"(W)here we were not able to lock it in with the bed contours we were able to lock the track of navigation in with the navigation lights." (TR-352)

Smith then testified at some length on how one uses navigation lights in determining the track of navigation, using Plaintiff's Exhibit 24, which is the July 2, 1976 hydrographic survey, as well as channel reports. (TR-352)

At TR-355 Mr. Smith gave a graphic description of how a river pilot uses the lights in navigating, using passing lights and crossing lights and the difference between "running on" and "running open".

Mr. Odom in his testimony, made no reference to running the lights at all. Mr. Harrison, in his testimony, interprets the phrase "running open on Gibson Light 600 feet" as meaning that the tow is brought within 600 feet of the bank at Gibson Light. We respectfully submit that the Special Master is somewhat confused on this point when, on page 13 of his Report in analyzing the testimony of Smith, the Special Master refers to Smith's "filling in the marks" and his testimony that the navigator would "break down" his tow, but then concludes, "The relationship of this description to the precise location of any of his live boundary lines remained unclear because he never gave a specific bearing on the Giles Bend Cut-Off Light."

At trial, Smith used a ruler to demonstrate how a navigator would run from Gibson Light to Giles Bend Light. Smith testified that the navigator would bring his tow in on Hole in the Wall Light (which is upstream from Gibson Light) and that he would then "shape up" down the right descending bank and as he passed Gibson Light he would run "on" Gibson Light (he obviously meant Giles Bend Light), which means "he's line-of-sight between the two, he follows the line of sight between the two lights, so he's running from light to light . . . and at this point the man running the tow is going to begin to break down the tow and he's going to follow the current, so I broke—I had the pilot break his tow down, begin to point his tow to the cut-off when he passed this line." (TR-356)

Mr. Smith's sailing line superimposed on Exhibit D-4, the 1972 hydrograph, depicts clearly the course that the tow takes from Gibson Light toward Giles Bend Light and the point in the river where the tow "breaks down" and leaves the "line-of-sight" course and proceeds toward the middle of Giles Bend Cut-Off. There is no need for the

tow, or Mr. Smith, to have any "specific bearing on the Giles Bend Cut-Off Light". The tow is in perfectly safe water and has taken the shortest and fastest route downstream.

Continuing at TR-356, Smith testified:

"Now, if he's running open on Gibson Light, say 600 feet, then he's running to a point 600 feet out in the river, and he's going to be running and he comes down; this is what's called filling the marks."

In other words, to "fill the marks" the pilot positions his tow proceeding on a "line-of-sight" course between Gibson Light and a point ("mark") 600 feet off-shore from Giles Bend Light. Looking forward, the pilot can see his "mark"; looking to the rear, he will see Gibson Light ("mark") and will be running on a course between the two "marks".

In running the marks, if the pilot runs 600 feet "open", he would not take his tow to a point 600 feet out from the river bank, but rather would run to a "mark" which is 600 feet out from the bank and then break his tow down at such point between the marks as is best suited for navigation through Giles Bend Cut-Off. With deference, we do not believe that the Special Master ever grasped this concept.

When Mississippi reached the point of introducing Exhibit D-5 (TR-361) the Special Master seemed to indicate a desire to speed up the trial.

"THE SPECIAL MASTER:

It will be received. Can these be treated the same way as we did this morning? Or do you say they are different?"

Thereafter, deferring to the Master's request, Mississippi did not again repeat all of the various steps and explanations used by Mr. Smith in arriving at his determination of the line of navigation, rather he was asked:

"Q. And putting this line on D-7 you followed the same methodology as in the other exhibits?

A. Yes, sir. This particular line is in line with the thalweg and with the track of navigation at the time of that survey." (TR-365)

After a short intermission, beginning at TR-368, the following transpired:

"THE SPECIAL MASTER:

Before we go on with D-8 I want to get straight in my mind, fundamentally I'm not sure where he gets that line, whether it's a sailing line as he would do it or whether it's the deepest part of the channel or whether it's a combination of the deepest part of the channel, the currents and how you sail a line of barges. It's not clear. I think I know the components. I think he laid a predicate for that in map D-4 or D-5, but I haven't absorbed it yet.

BY MR. WARD:

Q. Mr. Smith, I direct your attention to a document on the easel marked D-8 for identification and ask you what that is?

A. This is the 1973, October 17-18 hydrographic survey of the studied reach of the problem area.

Q. Depicted on this document is a solid black line broken by circles marked "live". What does that represent?

A. That represents the live boundary between Mississippi and Louisiana at the date of that hydrographic survey, and that was determined on the basis of the locus of the thalweg along the right descending bank and the locus of the thalweg over the Giles Bend crossing environment area.

THE SPECIAL MASTER:

What is the thalweg as you understand it?

THE WITNESS:

The thalweg is the deepest and swiftest water.

THE SPECIAL MASTER:

The deepest and swiftest, are these two qualities always combined?

THE WITNESS:

No; necessarily.

THE SPECIAL MASTER:

This is a combination that may not be the deepest, but it's the deepest that is swiftest?

THE WITNESS:

And the track of navigation, so you've got three things in your criteria, is the way I look at it, that's the way I've always looked at the boundaries, state boundaries, one is the thalweg—there are three criteria: one is the downstream course, one is the thalweg, the other is the track of navigation.

THE SPECIAL MASTER:

One is the downstream course, one is the thalweg, and one of them is the track of navigation. Now would you give me a definition for each of those three terms; downstream course you might begin with.

THE WITNESS:

Yes, sir. Navigation on the Mississippi River, on navigation, the marks are always, that is any guidance, any help, that is the aids that they would put out in a bulletin would be concerning the downstream track.

THE SPECIAL MASTER:

So you get the downstream course or track from navigational aids?

THE WITNESS:

That's where the navigational aids are put out . . ."

Smith then went on to testify, still at TR-371, that the Corps of Engineers put out navigation bulletins from 1930 to 1966 and it was not until 1966 that the Coast Guard took over the issuance of these channel reports and aids to navigation. "So we, the Corps, I speak of the time when I was there, were concerned all that time with the patrol boats, with the bulletins, with the buoys, the track of navigation."

The Special Master seemed to have a continuing difficulty in interpreting Mr. Smith's testimony, as indicated by the following:

"THE SPECIAL MASTER:

I haven't got, Mr. Ward, what I need. I don't know—I'm not blaming him, maybe you can get it for me, but I don't really know yet—I think I know the criteria for locating that line but I don't know how he puts them all together and puts that line on the map." (TR-373)

. . .

"THE SPECIAL MASTER:

Let me interrupt, that means, do I understand you're telling me that at least in that reach of the river upstream down to the X that the line that you have on the map represents both the deepest water and the swiftest current?

THE WITNESS:

And the track of navigation, all three of them are right there.

THE SPECIAL MASTER:

They all coincide?

THE WITNESS:

They all coincide, they are locked in.

THE SPECIAL MASTER:

I understand, and the reason they are locked in as to the track of navigation is because that's what the barge captains going downstream would use because that's the way the lighting navigational aids are?

THE WITNESS:

That's where the deep water is and if he comes into that bend he's going to come in on Hole in the Wall light, which isn't shown on this particular map, but it is a crossing light, so he's going to be running to that light or a little overland. He's going to come into that bend on this revetment.

THE SPECIAL MASTER:

All right, I think I understand. I'm beginning to get it, so why don't you proceed, Mr. Ward." (TR-333, 334, 335)

At this point, while it is somewhat repetitive, we would like to note that Mr. Smith was made Chief of the Navigation, Dredging and Mapping Branch in the Mississippi River Commission office (TR-331), with supervision of the river "from Cairo to the Gulf, and it was concerned with the Lower Mississippi Valley Division, supervision of deep draft navigation and the division activities, which included all of the waters in Louisiana, and portions of the waters in other tributary streams." (TR-332) So he was no neophyte.

Again, in introducing Exhibit D-11, the May 1975 Survey, he testified:

"Q. Was that line put there using the same methodology as you have used in the past?

A. Yes, sir." (TR-383)

Finally, in an effort to save time, hydrographs were introduced, en masse, being D-12, D-13 and D-14:

"THE SPECIAL MASTER:

Will they be admitted without objection?

MR. KIMMELL:

Yes, sir, they are admitted without objection. We've stipulated that those documents introduced would be, his testimony would be the same as with prior exhibits." (TR-386)

We trust that we have established that the Record shows, without contradiction, that Mr. Smith was knowledgeable in the navigational problems of the Mississippi River, for the period from 1950 through 1966, while he was Chief of the Navigation Section which, at that time, issued the bulletins for navigators and put out the lights and maintained the navigation aids, and that he used

these navigation aids in making a determination of his state boundary. Therefore, we submit that the Special Master was in error in concluding that Smith did not use the "navigational aids." (MR-14) The contours of the bed of the river, the floats indicating surface velocity of the current, the lights, and the buoys all were "navigational aids" used by Smith in interpreting the raw data of the hydrographs.

LOUISIANA QUESTIONED SMITH:

"Q. All right, sir, but did you also take into account the navigational aids that were placed upon these hydrographic charts?

A. Yes, sir, I discussed the navigational aids." (TR-438)

Only at one point did Smith say that he did not use the marks.

"Q. You don't look—when you are passing a light and it is directly off to your left or to your right so far as navigation aids are concerned you've passed out of the zone of that light, have you not?

A. Yes, sir.

Q. What's your course there, of those three exhibits that he'd made inquiry as to, was the course of your boundary within the marks, so far as the lights were concerned?

A. Well, I didn't use the marks, I used the thalweg of the Mississippi River to determine the live course. Some of the live courses were within the marks, some of them were not." (TR-452)

Summarizing, it is clear that, regrettably, the Special Master simply did not fully comprehend, and thus mis-

interpreted and gave less weight to, the testimony of Mr. Smith. The specific findings of fact, which we respectfully submit are clearly erroneous, which resulted from this treatment of Mr. Smith's testimony are addressed hereinafter.

D. The Findings of Fact for the Years in Dispute

1. The Boundary in 1975

Beginning at page 16 of this Report, the Special Master makes a rather lengthy analysis of the 1975 boundary, beginning with the hydrographic survey of February, 1974. We think it best to begin with the 1972 hydrograph. We are also going to refer to the exhibits of both Mr. Harrison and Mr. Smith. We select Mr. Harrison's for the reason that he colored in certain contour lines which are readily visible. River depths from zero low water contour to ten feet below low water contour are colored red. This represents shallow water. Depths from ten feet below low water contour to twenty feet below low water contour, which is the next shallowest water, have been colored in yellow. Depths between twenty and thirty feet below ordinary low water are colored in blue. That portion below thirty feet low water contour has not been colored and generally shows as white. (TR-50)

In interpreting these hydrographic maps and in evaluating the report of the Special Master, it should be borne in mind that the Corps of Engineers is committed to maintaining a channel depth for navigation of the Mississippi River at only nine feet. Only that part of the bed of the river colored by Mr. Harrison in red would be less than ten feet deep at low water. Thus, if the bed of the river did not change, the river could be safely navigated in any area colored blue or yellow or uncolored and left as white. It is common knowledge, however, that an alluvial river

such as the Mississippi, whose bed is composed largely of sand, gravel and mud, is not going to hold to a constant elevation. Indeed, it is these tendencies of the thalweg of the river to migrate (and thus scour deeper channels) and the current of the river to pick up and move vast quantities of material from the bed and banks of the river that causes a constantly shifting bed. These phenomena are clearly demonstrated by comparing the 1972, 1973, 1974 and 1975 hydrographs, which were introduced as Harrison's Exhibits P-8, P-15, P-17 and P-19.

The 1972 hydrograph shows a deep, wide river bed almost entirely uncolored from Gibson Light and Mile 372.2 down to Mile 363.0. In the spring of 1973 the Mississippi River experienced a major flood reaching an elevation which was second only to the 1927 and 1937 floods in this century. As described by Mr. Smith (TR-383), this major flood of 1973 caused serious bank caving below the foot of the then existing Gibson Revetment, which was subsequently extended to the south during 1974-1975 about a mile and one-half to its location as shown on the 1975 survey. Approximately 1,000 feet of the Louisiana bank caved into the river, endangering the Mississippi Power & Light Company aerial crossing suspension towers. As a result of this cave-in Mr. Smith testified that the live boundary of the river migrated westwardly and passed over the well site in the 1974-1975 period and remained to the west of the well until about 1979, when it migrated back over the well to the east. Later, it moved back westward again. After 1979, it has been randomly moved back and forth across the well. (TR-384)

Evidence of the build-up of the bed of the river by the deposition of detritus is clearly indicated by the October, 1973 hydrograph, Exhibit P-16. As shown by this exhibit, while there is still deep water upstream, almost

the entire river bed immediately above the well site is colored either blue or yellow. Mr. Harrison's channel line leaves the deep water about a mile below Gibson Light and crosses over to the Mississippi side or left descending bank, passing successively over areas tinted yellow, then blue, and almost touching the very shallow area tinted red.

Mr. Smith, in his analysis of the same 1973 hydrograph used a conservative, safe approach in depicting his thalweg or navigational line. To avoid the mischance of running aground, he selected a route where he would have thirteen-foot low water contours on each side of his sailing channel, with the channel itself being still deeper. These channels were sufficiently wide to accommodate the tows which ply the Mississippi River and also had the advantage of being shorter as compared to the circuitous route adopted by Mr. Harrison, who had navigation going from Gibson Light hard against the Louisiana shore, then across to Giles Bend Light on the Mississippi shore, then turning back across the river again toward Giles Bend Cut-Off Light on the Louisiana shore. In answer to an inquiry from the Special Master (TR-375), Mr. Smith's characterization of his 1973 course which utilized the deepest and swiftest water and was in the track of navigation, was, "You can't beat it."

THE SPECIAL MASTER:

"Would tug boat captains disagree with you and even among themselves?"

THE WITNESS:

"I think the smart captains on a million dollar towboat and a million dollar barge is going to be thinking about getting down the river as safe and as fast as he can."

THE SPECIAL MASTER:

"Is there any disagreement that you know of between captains of barges as to what is the swiftest and safest way to get down the river?"

THE WITNESS:

"Not to my knowledge." (TR-377)

Exhibit P-17, being the February, 1974 hydrograph, shows this same reach of the river becoming even shallower than before, with Mr. Harrison's channel line leaving the deep, uncolored area and crossing over the successively shallow beds tinted yellow, blue and finally red. The April, 1975 hydrograph, Exhibit P-20, indicates still more deposition of material on the bed of the river with increasingly shallow depths appearing. From Mile 371 down to Giles Bend Cut-Off Light there is little white area and all of it is against the right descending (Louisiana) shore. Once again, Mr. Harrison's channel line crosses first yellow, then blue, then red, then blue, then yellow areas.

We do not want to mislead the Court in this discussion because, as shown by the river gauges during this entire period, the river remained at a very high stage and there was ample water in the bed of the river to navigate a tow from the Mississippi bank to the Louisiana bank. What we want to emphasize is that in a time of ordinary or extreme low water the channel course depicted by Mr. Harrison could be fraught with danger and if even a minor change in the bed of the river occurred in the red tinted area a tow could easily go aground.

The Special Master, at page 16 referring to the 1975 hydrograph, said:

Mr. Harrison placed on the survey (Ex. P-19) as he did on the 1974 survey, the channel line depicted on

the 1974 edition of map #38 and could see no reason to modify that channel line for use as the boundary.

As each of these maps, all bearing the number 38, were introduced an objection was made by Mississippi. Ruling was reserved and as the Master reported at page 9, Mississippi "continued the objection in its Brief". We are unsure as to the status of these maps, as to whether they had been admitted or not, but since the Master refers to them frequently in his Report, for the purposes of this submission we are treating our objection as having been overruled.

When the first of these maps was introduced as an exhibit (TR-58) Mississippi stated that she had no objection to the introduction of the exhibit as being a true photostatic copy of map #38 of the 1972 Folio, it having been stipulated between Louisiana and Mississippi that any publication, map, chart or survey of the Mississippi River Commission or Corps of Engineers could be introduced without further proof of authenticity. But Mississippi did "object to these locations as having any probative effect on the question before the Court."

THE SPECIAL MASTER:

"We'll admit them for whatever they're worth."

MR. WARD:

"Now the lines have been put on the map, for what purpose, and the accuracy not having been established."

THE SPECIAL MASTER:

"I understand that objection. It's noted. I reserve it. Anything further than that can go to the weight."
(TR-59)

To explain the significance of the exhibits, Louisiana tendered a letter from the Vicksburg District Corps of Engineers, to which objection was made and ruling reserved, based upon the hearsay rule, and during cross-examination (TR-232) Mr. Harrison was asked to read the following excerpt:

"As requested in your letter of 20 November 1979, regarding the channel line shown on Flood Control and Navigation Maps of the Mississippi River within the Vicksburg Engineer District the following information is furnished.

A. The general location of the channel line is sketched on the maps by Vicksburg District Navigation Branch personnel." (TR-233)

Obviously, documents which merely purport to depict the "general" location of a line which has been "sketched" on the maps by Vicksburg District Navigation Branch "personnel" are of little value as an aid in determining a boundary line between the States of Louisiana and Mississippi. Nowhere in the record is there any identification of the "personnel" who made the "sketch" nor is there any proof of either their qualifications or the information upon which the location of the "channel line" is based. Moreover, as has been mentioned, Mr. Smith actually directed the preparation and publication of these generalized maps in his capacity as Chief of the Navigation Branch of the Mississippi River Commission. Well understanding their intended purpose, the great time lapse between the dates of data acquisition and map publication (up to two years) and the gross inaccuracy of these charts, Mr. Smith fully discussed these pictorials and responded to a question about the wisdom of using them for boundary determinations by saying, "I wouldn't think of it . . ." (TR-411-414)

Smith used the methodology already discussed herein-above in placing his state line on the April, 1975 hydrograph. While the Special Master recognized this, his reaction was adverse. He states:

"Mr. Smith defined the nature of the crossing environment in April, 1975 by placing 15-foot contour lines on the survey, using the soundings found thereon (Ex. D-11). Areas within these contour lines would be covered by less than 15 feet of water relative to the average low water plane." (MR-19)

This statement completely overlooks the fact that the sailing line lies *between* the fifteen-foot contours, and at lower depths, and even these limiting contours themselves are six feet deeper than the nine foot channel maintained by the Corps of Engineers. Thus, Smith depicted a perfectly safe channel. Again, the Master recites:

"The boundary line placed on the April, 1975 survey by Mr. Smith appears to be based on two factors, the location of the upstream trough of deep water and the location of the shallow water indicated by the 15-foot contour lines. As an indicator of the probable course of downstream traffic, Mr. Smith's boundary line presents several problems.

"First, the line is not consistent with Mr. Smith's own testimony as to the manner in which a navigator would proceed between Gibson Light and the Giles Bend Cutoff Light. Upstream from the bend, Mr. Smith's line hugs the right descending bank so closely and for so long a distance that its heading bears almost no relationship to that light. Moreover, the line reflects no 'breaking down' of the tow (that is, making a turn) upstream from the Giles Bend Light so that

the tow is headed downstream by the time it passes the light." (MR-19)

Again, the Special Master misreads Mr. Smith's testimony. Mr. Smith's navigation line or thalweg passes Gibson Light and courses downstream an easy distance off of the Gibson Light revetment until it passes the end of the revetment, at which time it moves out gradually into the center of the river to take a position where it can pass down the middle of Giles Bend Cut-Off. There is no necessity to "fill in the marks" because the mariner would not pass over the crossing from Gibson Light to Giles Bend Light and then back again from Giles Bend Light to Giles Bend Cut-Off Light. Rather, the pilot would go directly from Gibson Light to Giles Bend Cut-Off Light, using each of these lights as a "passing light." Nor is there any necessity for "breaking down" the tow upstream from Giles Bend Cut-Off Light, as it would maintain practically a direct course through safe water throughout. As Mr. Smith testified, for the purpose of taking advantage of the deepest water, the swiftest water, and the shortest distance, his route just could not "be beat".

Again, on page 19, the Master relates:

"The second problem relates to one of the apparent advantages of Mr. Smith's proposed boundary line. It lies in or near the deepest water available upstream from the bend. However, the relative locations of the two troughs of deep water precludes, absent an implausible sharp turn to the left, making such full use of the deepest available water both upstream and downstream from the bend. Traffic passing along Mr. Smith's boundary line would fail to take advantage of the first 3,500 to 4,000 feet of the downstream trough of deep water. Thus, Mr. Smith's line cannot be justified on the basis that it is located in the deepest water.

It is so located upstream from the bend, but it is not so located downstream."

Here again, the Master ignores Mr. Smith's methodology which consists of using the deepest water, the swiftest water and the track of navigation. However, the Master does seem to recognize that a crossing over to Giles Bend Light would be "an implausible sharp turn to the left".

Again, on page 20 of the Report, the Master seems to be arguing against himself when he states:

"Nothing in the record indicates a necessity for avoiding the 15-foot contour areas entirely. The study gage data indicate very high water during this period and safe navigation was possible virtually anywhere within the crossing environment. Even if one infers the probable course of downstream traffic by reference to water depths relative to the average low water plane, water 15 feet deep apparently would be safe since the Corps of Engineers project for this reach of the river prescribes maintenance of a channel only 9 feet deep."

Mr. Smith did not see the necessity, nor do we, of abandoning a channel which had a six-foot depth over and above the nine-foot project channel. We submit that Mr. Smith was correct in picking a course that took advantage of the deep water, the swift water and the shortest distance through the crossing environment.

2. The Boundary in 1976

The Master's comments on the April, 1976 hydrograph are in large part a recapitulation of his analysis of the 1975 hydrograph. Again, he notes that Mr. Harrison transposed the 1976 edition of Map No. 38 onto this hydro-

graph and "could see no reason to modify this line for the purposes of locating the live boundary." (MR-23) The channel selection by Harrison again crosses over to the left descending (Mississippi) bank and then turns westward through the crossing to Giles Bend Cut-Off and then proceeds down the middle of Giles Bend Cut-Off. Smith's line follows the very deep water adjacent to the Gibson revetment in a straight line and at the end of the revetment, marked by the white area, passes over areas shaded yellow, then blue, then yellow again, down into the Giles Bend Cut-Off channel. Once again, we have the economy of Mr. Smith's line which utilizes the deepest water, swiftest water and most direct route as against Harrison's circuitous route by way of Giles Bend Light. Both channels or lines are in water sufficiently deep to accommodate the tow without any danger of grounding. Mr. Smith continues to honor his fifteen-foot contour lines. The Special Master recognizes:

"One advantage of a route along Mr. Smith's boundary line relates to the truism that the shortest distance between two points is a straight line. In addition, Mr. Smith's boundary line has the advantage of lying in the deepest water within the crossing environment, from a point approximately 1 1/2 miles upstream from the well to a point 1,000 feet upstream from the well. However, this advantage can be gained only at the cost of disregarding several thousand feet of deeper water available upstream from the crossing as well as the first mile of deep water downstream from the bend. The deep water would tend to attract mariners to a route along the channel line depicted on the 1976 edition of Map No. 38, or east thereof." (MR-24)

It is difficult to see why the advantage of Smith's short route is off-set by "disregarding several thousand

feet of deeper water" when it is not needed, because the deepest water is along the route selected by Smith.

Again, the Master, at page 25 of his Report, says:

"Given the characteristics of the crossing environment, Mr. Smith's boundary line is plausible as an indicator of the probable route of downstream traffic in the ordinary course. However, maximum use of deep water recommends a sailing line very similar to the one inferred for 1975. In addition, such a line would have allowed the mariner to keep his tow pointed down the river with no sharp turns and without encountering hazardous water within the crossing environment. I infer that the probable course of downstream traffic in April, 1976 lay along the channel line depicted on the 1976 edition of Map No. 38 or to the east thereof, and passed to the east of the well by approximately 1,000 feet." (MR-25)

We do not understand the reasoning of the Special Master, who concedes that Smith's route is the shortest (being a straight one) but then says that Harrison has an advantage in that his route will "keep his tow pointed down the river with no sharp turns".

In commenting on the July, 1976 survey, at page 25 of his Report, the Special Master states:

"The survey for July indicates very little change in the river, except that an avenue of water 20 to 30 feet deep is available within the crossing environment to the west of the well; Mr. Smith places his boundary line in the middle of this avenue (Ex. D-14). Thus, the location of the deepest water within the crossing environment recommends a course along Mr. Smith's boundary line. Once again, the location of the deep water troughs above and below the bend

suggests a course along or to the east of the channel line depicted on the 1976 edition of Map No. 38. No hazards within the crossing environment preclude following either course."

Since there are no hazards within the crossing environment in either course, it is difficult to understand why the Master recommends the longer course selected by Mr. Harrison.

The Master comments, on page 26, that there is little change between the July and October, 1976 survey. He does make one interesting comment, in support of his independently determined line:

"The survey does indicate the location of a number of buoys in this reach of the river. When proceeding downstream, the mariner is to give the red buoys a wide berth on his left and the black buoys a wide berth on his right. A mariner proceeding along Mr. Smith's boundary line would nearly overrun the first black buoy and would have the second black buoy to the left of his tow as he passed that buoy. Mr. Smith asserted that the second buoy appeared to be off station. In responding to questions on cross-examination, he objected to the placement of the second buoy because it lay in the path of his boundary line, an objection which places the cart before the course. The evidence provided by the survey and the Channel Report supports the inference that downstream traffic continued to follow a course along or to the east of the channel line on Map No. 38 and passed approximately 1,000 feet to the east of the well. I find from all of the evidence that the probable route of downstream traffic in the ordinary course throughout 1976 passed to the east of the well."

Mr. Smith's appraisalment of the situation is entirely correct for the reason that these black buoys are located in the very deepest part of the channel. This is indicated by the elevations of the bed of the river which are lowest at the point where the buoys are stationed. While much has been made by Louisiana, and now the Master, about the location of Smith's thalweg with respect to the black buoys appearing on these particular hydrographs, Mississippi pointed out to the Master that these exhibits were studied considerably by Mr. Smith and the other experts long before testimony was offered. With over fifty years' experience regarding navigation and other aspects of the Mississippi River, Mr. Smith surely would not consciously ignore a shallow water buoy without plausible explanation. Having intimate knowledge of, and being formerly responsible for, placement of these buoys in the river, Mr. Smith certainly is qualified to determine whether or not one is "off station." To suggest otherwise is ludicrous. It should be noted, in passing, that even Mr. Odom's so-called "geological thalweg" (which he says is the deepest part of the river) runs right over these same black buoys.

3. The Boundary in 1977

The Special Master comments, at page 27 of his Report, that Smith's boundary line reflects a straight line course across the neck of Giles Bend, but then says:

"I can find no evidence in the record to support the placement of Mr. Smith's boundary line. The upstream trough of deep water lies in the middle of the river and not along the right descending bank where Mr. Smith places his line. The deepest water available within the crossing environment lies consistently in the middle or eastern half of the river and not along the right descending bank. Mr. Smith places

his boundary between two areas of shallow water defined by 15-foot contour lines. The contour lines may be misdrawn. See note 4, *supra*. At low water, the water would be less than 15 feet deep throughout almost the entire western two-thirds of the river, from the bend to the well, and Mr. Smith's boundary line lies in the middle of this shallow water. The downstream trough of deep water lies along the left descending bank and Mr. Smith's line, as a course for navigation, would make no use of the first mile of this deep water. A Channel Report introduced into evidence (Ex. P-31) recommends the same course as recommended in the 1976 reports. The 1977 channel line closely approximates this course. Mr. Smith's boundary line bears no relationship to the recommended course."

There are one or two comments of interest that can be made about this recommendation of the Special Master. First, a mere glance at the hydrograph shows that the Master's conclusion regarding the upstream trough of deep water is patently erroneous. Second, criticising Mr. Smith's boundary between two 15-foot contour lines, the Master notes that "the contour lines may be misdrawn. See note 4 *supra*". Note 4 appears at page 24 of his Report and reads as follows:

"Most surveys that were introduced into evidence, including Exhibit D-13, are composites which join together two surveys for portions of the river upstream and downstream from Giles Bend. On Exhibit D-13, the upstream and downstream surveys indicate different figures for the average low water plane. It is not clear which figure should be used for purposes of drawing contour lines. Mr. Smith used the higher elevation indicated on the downstream survey, which

has the effect of diminishing the area within the 15-foot contour lines."

What has apparently troubled the Special Master is his lack of knowledge of the gradient of the Mississippi River. As the river nears the Gulf of Mexico, the flatter its gradient becomes. Harrison's Exhibit P-29 shows the legend "LWRD" located on the east shore of the Mississippi

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approximately half way between Mile 370 and Mile 371. Shown further downstream on the Mississippi bank, approximately half way between Mile 366 and Mile 367, is another legend "LWRD". These figures indicate that

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on the 20th day of May, 1977 the low water reference plane was 24 at the upper limits and changed from 24 to 23 opposite Giles Bend Cut-Off Light. This indicates that in this reach of the river, approximately four miles, the gradient or slope of the river was one foot, which means that the water plane fell approximately 3.0 inches per river mile.

Yet another point of interest on the May, 1977 hydrograph is that the three lines of floats immediately upstream from Giles Bend Light indicate that the current was relatively slow and at the same velocity across the entire surface of the river at this point. Under these conditions, it would seem entirely logical that the shorter and more direct sailing line selected by Smith would be preferred over the curving, roundabout channel selected by Mr. Harrison. No advantage could be gained by crossing over to Giles Bend Light and then crossing back to Giles Bend Cut-Off Light before entering Giles Cut-Off.

In sum, the Master again holds up as the apparent "standard" the generalized sailing line on the Corps' navigation pictorials. Moreover, while earlier justifying the

use of "shallow" water so long as prevailing depths exceeded the nine-foot "project channel", the Master here compels the use of deeper water in order to opt for the route he prefers. The inconsistency is obvious.

4. The Boundary in 1981

In discussing the April, 1981 hydrograph, the Special Master comments that there are deep troughs of water upstream and downstream from bend and "a broad avenue of water 20 to 30 feet deep lies within the crossing environment between the two troughs of deep water." At page 29 he notes that no hazards would be encountered within the crossing using either the Harrison, Odom or Smith line, but he discards Smith's line, stating:

"However, this course would fail to make use of substantial portions of the deep water troughs and thereby lengthen the crossing."

Frankly, nothing in evidence explains the Special Master's reasoning at this point. Once again, both the Odom and Harrison sailing lines "cross over" from the Louisiana shore to the Mississippi side in the vicinity of Giles Bend Light and then turn back west toward Giles Bend Cut-Off Light before entering Giles Bend Cut-Off Channel. The Smith line follows the deep water along the Louisiana shore until it leaves the Gibson Light Revetment, and then takes a straight, direct, shorter path into the head of Giles Bend Cut-Off. We see no factual basis whatsoever for the statement by the Special Master that Smith's course lengthens the crossing.

Moreover, following the arc chosen by the Master would require the mariner to leave Giles Bend headed directly toward the Louisiana bank, thus necessitating a sharp turn of the tow to the left, in the swift water in the "necked down" area at the head of Giles Bend Cut-Off

(the increased velocity is clearly evidenced by the absence of shoaling, indicating deeper water). These sharp turns, which may be easily measured on the hydrographs at 27-30 degrees, may be accomplished by a sailboat with ease, but by a quarter-mile long tow only with great difficulty. The course chosen by Mr. Smith, in marked contrast, reflects an "easy" passage through the area.

We respectfully submit that the course chosen by the Master for the 1981 hydrographs simply doesn't square with either the data on the hydrographs or the practical realities of navigating large tows on the river.

E. The Special Master's Refusal to Delineate a Specific Boundary

In his draft report, the Special Master made no findings of fact regarding the precise locus of the thalweg (State boundary), by geodetic coordinates, for the entire length of the reach of the river in dispute, for any time period in issue. Mississippi, in post-trial argument on the draft report before the Master in Denver, strongly contended for this feature in the final report and, at the Master's direction, fully addressed the point in our supplemental brief. While we refer to and urge the Court to carefully consider the points and authorities found in our supplemental brief, we feel that additional comments are required as a result of the Master's final election not to determine a specific locus for the State boundary involved here.

Louisiana and Mississippi have, from the very outset of this litigation, contended that the end result would be establishment of a definitive boundary in the live thalweg of the Mississippi River in the "area in dispute". Louisiana specifically asked for this relief in her Complaint, and repeatedly supported this prayer for relief

throughout her briefs and presentation of evidence at trial. Likewise, Mississippi has steadfastly maintained that the objective sought in this suit was delineation of a boundary, preferably by geodetic coordinates, as was done in *Louisiana v. Mississippi*, *supra*.

Only when the Special Master circulated for review his preliminary draft of the Report now before this Court did the States see that they were not going to be given what they had asked for all along. Rather than commit to paper his own independent judgment regarding the specific location of the State boundary in the "area in dispute" during the times relevant to this litigation, the Master has leaped from the "boundary" issue to a "title" concept whereby he now recommends that this Court simply declare that at all times relevant hereto the live thalweg of the Mississippi River lay east of the location of the bottom hole of the oil well in issue.

On page 31 of his Report, the Special Master tersely states, "The issue in this case, from the time it was first filed in state court, and as pled and tried in this Court, is the location of the boundary in relation to the bottom hole of Louisiana State Well No. 3. . . ." (Emphasis added) In the purest sense, this is simply not true. The ultimate issue before this Court is, conversely, the location of the bottom hole of Louisiana State Well No. 3 with respect to the boundary in dispute. A slight change in semantics results in an altogether different posture for the case. What the Special Master literally now asks this Court to do, to use his own words, is to "get the cart before the course".

Using the same hydrographic maps, based upon controlled surveys, showing bank lines, elevations of the bed of the river, (mean sea level) and mean low water plane we here see the strange spectacle of the Louisiana expert

witnesses disagreeing between themselves as to the locus of the thalweg, Mississippi's expert, Smith, describing a third locus, with the Special Master rejecting all three but refusing to either recommend a thalweg locus by reference to geodetic coordinates or to depict its location by superimposing it on the hydrographics. Amazingly, the upshot of the ultimate decision—ownership of the well—appears to have been reached while the principal (and only) issue floats amorphous in the ether.

As has already been mentioned in the initial passages hereof, the Special Master has made no determination whatsoever regarding a "boundary", while he labors with great pains to describe a "probable course" of downstream traffic in the reach of the Mississippi River now being examined. However, after straining to place the "probable downstream course" where he wanted it, the Special Master then completely discarded the entirety of this course save for one distinct point—a point lying on an east-west line drawn through the location of the bottom hole of Louisiana State Well No. 3. In summary fashion, the Special Master then, through approximate distances between the terminal points of this imaginary line, places the non-existent "boundary" at all times east of the well.

In an effort to justify the "shortcut" method of resolving the complex issues before the Court, the Special Master then attempts to negate in wholesale fashion the efficacy of establishing a specific boundary by geodetic coordinates. The basic thrust of this contention is that, inasmuch as the live thalweg is, indeed, ambulatory at all times, the State boundary based thereon is literally "here today and gone tomorrow". Mississippi not only has contended for this proposition from the outset, but steadfastly supports this thinking now. However, aside from any problems of drainage occasioned by the west-

ward migration of the thalweg of the river, as may be asserted by the Dilles, other ramifications of the determination of the State boundary in question are inescapable. First, as has been alluded to only lightly by the Special Master, both States have regulatory and taxing authority over the lands extending to their common boundary. The precise location of the State boundary at a given point in time, while it may change immediately, has great significance to tax assessors and collectors in both states. Moreover, inasmuch as riparian owners on the Mississippi side of the river must describe their lands with specificity whenever the same are conveyed, the determination of the Special Master in this case regarding the location of the State boundary takes on critical proportions when the matter of property transfers is taken into account.

Additionally, while the Mississippi Oil and Gas Board has established no drillings units on the Mississippi side of the live thalweg in the area in dispute, as has been done in Louisiana, there is no reason to suggest that this effort might not commence at any time. That being the case, the State of Mississippi must be able to establish, with reasonable precision, the exact location of the State line so as to prescribe the limits of drilling units on the Mississippi side of the river. Again, while the boundary may, indeed, migrate daily, the determination of this Court in this case would be of great benefit as a guideline to all who may have to face the same or similar questions in the future.

Additionally, a precise determination of the interstate boundary in this case will enure to the benefit of the State of Louisiana, as well. As is obvious from the exhibits attached to Louisiana's original pleadings, several drilling units, including areas bounded by a portion of the "dead" 1964 thalweg in the Giles Bend Cut-Off,

were created years ago. Since even Louisiana has now established a westerly migration of the State boundary in the years subsequent to establishment of these drilling units, it is abundantly clear that the State of Louisiana, which owns the submerged bed of the Mississippi River out to the State boundary, must now readjust several parameters surrounding these drilling units and production therefrom. Again, there is no way for the State of Louisiana to make any decision regarding the effect of the westerly movement of the live thalweg of the river in the area in dispute upon existing Louisiana drilling units unless this Court now does what it has always done in the past—prescribe the State boundary by ascertainable coordinates. Louisiana has asked this Court for such relief all along, and only after the Special Master indicated in the preliminary draft of his report that he would hold in favor of Louisiana did Louisiana decide “not to look a gift horse in the mouth,” and acquiesced in the Special Master’s suggestion that he not be called upon to define the State boundary in contest with any specificity.

In sum, Mississippi can find no other prior dispute involving an interstate boundary wherein the rule of the thalweg governed that this Court has not specifically determined a precise location of the disputed boundary. This is certainly no time to deviate from long established policy.

III.

CONCLUSION

Mississippi readily acknowledges that resolution of intricate, complex fact questions such as those inherent in this litigation is extremely demanding, and we commend the diligence of the Special Master in his attempts to deal with the situation at hand. Refereeing a "battle of experts" is difficult enough when the result entails merely the choice of the testimony of one particular expert over another or others. The difficulty compounds when, as here, a Special Master fashions his own "expert" opinion virtually independent of that of the witnesses.

Yet another obvious consideration here is that the dispute ultimately focused on but four of the nine years in question. Placement of the live thalweg in such a way that the well would be to the east thereof in all or even part of any of those years would mean further litigation regarding refunds of royalties and production payments and all other similar matters sought to be injected into these proceedings earlier by operators and royalty owners. All involved, including the Special Master, recognized this, and so must this Court. However, notwithstanding such anticipated trauma, equity requires that the thalweg, and thus the State boundary, be properly drawn for each hydrograph in each year examined, even if this results in the well being located in Mississippi for only a brief interval. To do otherwise would be resorting to mere expediency.

Mississippi and her co-defendant, Avery B. Dille, Jr., respectfully submit that the Special Master erred in his findings of fact, as thoroughly discussed hereinabove, and further erred in refusing to specifically define the locus of the State boundary for the full length of the reach of

the Mississippi River in dispute here, for each of the years in question. Mississippi prays that this Court will reverse the Special Master and enter its Decree here determining the locus of the Louisiana-Mississippi State boundary here in issue to be as described according to the geodetic coordinates prepared by Mr. Austin Smith, as set forth on Exhibit D-23, at page 434 of the trial transcript.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I, WILLIAM S. BOYD, III, Special Assistant Attorney General of the State of Mississippi and a member of the bar of the United States Supreme Court, do hereby certify that I have this day forwarded by United States Mail, postage prepaid, in the number and manner prescribed by Rule 33 of the Rules of the United States Supreme Court, true and correct copies of the foregoing Exceptions To The Report Of The Special Master to the following:

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This the 10th day of August, 1983.

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